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THE PLANT DISEASE REPORTER

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The Plant Disease Reporter is issued as a service to plant pathologists throughout the United States. It contains reports, summaries, observations, and comments submitted voluntarily by qualified observers. These reports often are in the form of suggestions, queries, and opinions, frequently purely tentative, offered for consideration or discussion rather than as matters of established fact. In accepting and publishing this material the Division of Mycology and Disease Survey serves merely as an informational clearing house. It does not assume responsibility for the subject matter.

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Weather during May was very favorable to apple scab infection, according to O. C. Boyd and Thomas Sproston, reporting on plant diseases in Massachusetts, page 274.

"ARASAN" (THIOSAN) AS A SPINACH SEED TREATMENT

Richard P. Porter

"Arasan" is identical with "Thiosan" as to the amount and identity of the active ingredient, which is, for both products, 50% tetramethyl thiuram disulfide. Thiosan was introduced during the spring of 1942 for use in control of certain turf diseases. It is used as an aqueous suspension, so the formula includes a wetting agent. The manufacturers of Thiosan found that it was not satisfactory for the treatment of seeds since it did not feed satisfactorily through the powder dispenser devices on automatic seed treaters, was too dusty to use and, under certain conditions, the wetting agent was objectionable 1/. Arasan was developed to overcome these physical weaknesses, but was not introduced until early this year.

Thiosan and Arasan were compared by planting treated seeds in inoculated soils, the fungi being either Rhizoctonia sp. or Pythium sp. In 2 separate tests, no significant difference in fungicidal value between these 2 materials could be detected, as was to be expected. Miles states that the Bayer-Semesan people also have found Arasan to be fully as effective as Thiosan as a seed treatment 1/. To prevent confusion in this paper, "Thiosan" and "Arasan", the materials tested containing 50% tetramethyl thiuram disulfide as the active ingredient, henceforward will both be referred to as "Arasan."

In preliminary tests during the summer of 1942, the germination of Arasan-treated seeds, even at dosages as low as 0.2%, compared favorably with that of seed treated with 2% zinc oxide, the usually recommended seed treatment for spinach 2/. Optimum results were obtained with Arasan at a 0.4% dosage.

Arasan was compared during the winter of 1942-43 in the greenhouse with other materials, treated seeds being sown in soil artificially inoculated with Pythium sp. or with Rhizoctonia sp. The fungi were previously isolated from decayed spinach seeds. Data are given in Table 1.

When seeds were planted in soil inoculated with Rhizoctonia sp., seeds treated by either 2% Zinc Oxide or 0.4% Arasan, germinated significantly better than untreated seeds in all tests, with Arasan significantly better than Zinc Oxide in 3 of the 4 trials. In Pythium-infested soil, the treated seeds again germinated significantly better than the checks in all tests, but Arasan was significantly better than Zinc Oxide in only a single instance. In no test, either in Rhizoctonia-or Pythium-inoculated soils, was the Zinc Oxide treatment significantly better than Arasan. The results indicate a possibility that Arasan may be specific for Rhizoctonia sp.

When seeds treated with 0.4% Arasan and untreated seeds were run separately through a seed drill, treated seeds showed no significant increase in the mean number of cracked seeds; also the treated seeds

1/. Miles, G. F. Personal communication of March 8, 1943.

2/. Cook, Harold T. Results of the Cooperative Spinach Seed Treatment in 1941. Mimeographed Dec. 1941.

Table 1. Mean emergence of spinach seed treated with Zinc Oxide, Thiosan, and Arasan, and planted in soils inoculated with Pythium sp. and Rhizoctonia sp., respectively.

	Test 1		Test 2		Test 3		Test 4	
	P*	R**	P	R	P	R	P	R
Zinc Oxide 2.0%	27.3	20.7	12.0	13.5	73.2	51.5	38.5	32.2
Thiosan 0.4%	28.3	23.3	24.2	23.2	75.7	63.5	43.7	49.2
Arasan 0.4%					76.0	57.5	49.5	47.0
Untreated check	3.7	14.0	5.0	8.0	52.7	15.7	24.5	2.7
Least difference necessary for significance	16.0	5.4	7.9	3.7	2.9	11.9	16.0	9.7

P* - Soil inoculated with Pythium sp.
R** - Soil inoculated with Rhizoctonia sp.

apparently cause no physical abrasion to the drill, though tests here were limited. These facts indicate that the small amount of Arasan dust on the seed at low dosages does not substantially increase friction as is the case when 2% Zinc Oxide without graphite is used; therefore, it probably will not be necessary to use graphite with Arasan at dosages of 0.4% or less.

Results received to date from cooperators in the National Spinach Seed Treatment Trials for 1943 indicate that a 0.25% dosage of Arasan will be adequate. Of the 9 significant tests so far received, 7 of them show that Arasan at 0.25% dosage is as beneficial as Zinc Oxide at 2.0%.

Treatment of spinach seed with Arasan at a 0.25% dosage is cheaper than the Zinc Oxide-graphite method; viz., the cost of treating 2000 pounds of spinach seed with Zinc Oxide ranges from $9 to $12, whereas the same quantity of seed may be treated with Arasan for $5.75 to $6.45. Arasan has the added advantage that no graphite, a disagreeable material to handle, need be added and it contains no war-scarce metal. However, Arasan is irritating to the nose and throat of some persons and it may be necessary to use a respirator when treating large amounts of seed.

VIRGINIA TRUCK EXPERIMENT STATION, NORFOLK

CANNING PEA DISEASES IN WISCONSIN IN 1943

W. W. Ware

Since the earlier report in the preceding issue (p. 244) 26 pea fields have been examined for diseases. These were chiefly late varieties and were fairly well scattered over the pea acreage. The following table gives the diseases found and their relative severity:

Pea diseases in late varieties of canning peas (Sweets) in Wisconsin, 1943

Disease	Number of fields with				
	None	Trace	Slight	Moderate	Severe
Ascochyta blight	5	5	2	9	5
Anthracnose	7	4	2	12	1
Bacterial blight	22	1	1	1	1
Septoria blight	19	4	3		
Powdery mildew	10	11	3		2
Mosaic	15	5	5	1	
Streak	14	4	4	4	
Near-wilt	15	6	1	2	2
Root-rot	14	3	3	1	5

As in the preceding report Aphanomyces root-rot [A. euteiches] was the most damaging disease but again much less so than in the sweet crop of 1942 (Wis. Research Bulletin 145). Only 5 fields out of 26 were severely diseased compared to 79 out of 311 in the sweet crop of 1942. Near-wilt [Fusarium] was found in 11 of the 26 fields and was moderate or severe in 4 fields. This was double the percentage of moderate or severely diseased fields found in 1942.

While bacterial blight [Pseudomonas pisi] was less severe on the sweets, Ascochyta blight and anthracnose [Colletotrichum pisi] were much more severe than on the Alaskas and much more prevalent than in the 1942 sweet crop. These 2 diseases were very frequently found together in the same field and they caused much of the yellowing and drying of the foliage. In some fields they caused a severe spotting and deformation of the pods. Both diseases were found in fields that had not been in peas for 15 to 20 years.

Mosaic and streak [virus] were both common in the later plantings. The percent of fields infected was less than in 1942 but the severity in individual fields was greater.

UNIVERSITY OF WISCONSIN, July 29

Vol. 27, No. 14--THE PLANT DISEASE REPORTER--Aug. 1, 1943

FURTHER REPORTS ON POTATO LATE BLIGHT

Local outbreaks reported in central Nebraska and in southeastern West Virginia are exceptions to the general quiescence or slow spread of infection. Temperature and moisture during the last 2 weeks of July were mostly rather unfavorable to the disease. Nevertheless, centers of infection are widespread enough to make rapid spread and appreciable, if not severe, damage a certainty if a general drop in temperature and increased rainfall should stimulate resumption of activity. Future development depends on the weather.

Since the preceding issue, late blight has been reported in upstate New York, Delaware, West Virginia, and Michigan. Infections were found in 2 fields in Iowa and in 1 in Minnesota. Late-blight rot of the seed-piece is believed to be one cause of poor stands locally in Colorado.

Although spread continues on Long Island it has been slow and no noticeably blighted areas have developed. In Wisconsin there has been no change.

As already noted, in contrast to the general inertness of the disease, 2 active outbreaks are reported, from southeastern West Virginia and central Nebraska. The latter is especially interesting in view of the fact that up to last year late blight was not known to occur in the State.

Mean temperatures during the past 2 weeks are summarized as favorable or unfavorable to the spread of late blight in the following tabulation (compiled from tables in the Weekly Weather and Crop Bulletin, weeks ending July 20 and July 27). Except in local areas, precipitation was too slight to favor spread.

Mean Temperature in Relation to Potato Late Blight Spread

Favorable (Up to 75° F.)	Unfavorable (Above 75° F.)	Change from Preceding week
Week ending July 20:		
New England		About same
New York except in south	Southern New York	Some increase
	New Jersey, central and eastern Pennsylvania	Increase
Western Pennsylvania		None
Northern Ohio	Virginia	Increase
West Virginia		None
Michigan		Increase

Favorable (Up to 75° F.)	Unfavorable (Above 75° F.)	Change from Preceding week
Wisconsin		Increase in east; decrease in west
Minnesota, northern Iowa, northern Nebraska, South and North Dakota, Colorado.	Iowa and Nebraska except the northern parts.	General decrease, except in northern Nebraska where there was an increase.
Week ending July 27:		
New England, New York except in south, northern and western Pennsylvania, northern Ohio.	Southern New York, New Jersey	General decrease
	Central and eastern Pennsylvania	Increase
West Virginia		Same
Michigan		Some decrease
Wisconsin		Decrease in east; increase in west
Northern Iowa, North Dakota	Iowa except in north, Nebraska, South Dakota, Colorado	General increase.

Following are the reports received:

CONNECTICUT: We have made another survey of the potato-growing area of this State but still are unable to find late blight. We sent a news story to the papers about the first of July requesting specimens but none of these uncovered any late blight. Tipburn is showing up heavily in the State this year and much earlier than usual, presumably because of the recent serious drought which was just broken yesterday. No Alternaria blight has been observed as yet. (James G. Horsfall, Connecticut Agricultural Experiment Station. July 30)

NEW YORK: (Reports from New York State College of Agriculture Weekly News Letter, for dates indicated) Late blight has been found in muck fields of Wayne County and in hilly fields of Madison County. It has also been reported from Oneida and Chenango Counties and may occur in other places. Apparently it has become established in several places in upstate New York as well as on Long Island. There is a prob-

ability that it will become more general as soon as cool nights with heavy dews occur. A period of cool weather with rains will hasten its spread. (M. F. Barrus, July 26)

DELAWARE: Late blight has made its appearance in a few isolated plantings in northern Delaware. I have not found the disease in commercial fields or in fields that have been sprayed or dusted. All specimens have been collected from garden plantings. (S. L. Hopperstead, Delaware Agricultural Experiment Station. July 31)

LATE BLIGHT IN TIDEWATER VIRGINIA THIS SPRING AND LAST FALL: During both seasons we had very little, if any, of the blight; it being identified only in a few scattered tubers sent in to the laboratory. The observations that Dr. H. T. Cook has made during the past 10 years in this area indicate that the disease is very uncommon on the spring plantings but does occur more often on the fall crop. (Richard P. Porter, Virginia Truck Experiment Station, Norfolk. July 28)

WEST VIRGINIA: Yesterday I made a trip through several counties in the southeastern part of the State where late blight had been reported severe on both potatoes and tomatoes by Mr. Waldo Craig, our state nursery inspector. We found some late blight in every potato field we examined as far north as the southern part of Preston County about 30 miles southeast of Morgantown. The severity of infection increased as we went farther south where rainfall has been more abundant and frequent. In some small home gardens where no spraying had been done very heavy infections were found and in certain other unsprayed fields in more isolated localities the infection was light. In the larger fields where a consistent spray program had been followed only a light infection was found. However, if weather conditions continue favorable for a few days there is enough infection present to cause severe losses. Infection on tomatoes was never as severe as infection on potatoes and the heaviest infection was always found in the immediate vicinity of a badly affected potato field. Up to the present time no great amount of injury has been done on tomatoes by late blight but inasmuch as there is nearly always considerable early blight on tomatoes, this is often confused with late blight injury. Should weather conditions continue favorable, however, much injury could be caused on tomatoes.

Rainfall has been particularly abundant in this section of the State and there were local showers throughout the region yesterday, producing ideal conditions for further development. (J. G. Leach, West Virginia University. July 30)

MICHIGAN: I spent the week of July 5 in northern Michigan examining potato fields on table stock which was known to have had late blight in it but have been unable to find any in Emmett, Otsego, Cheboygan, and Presque Isle Counties. I might add that the potato crop in northern Michigan is very much later planted than usual this year. In the vicinity of Petoskey on July 8, some potatoes were being planted while I was there. Most of our crop is from 2 to 6 inches in height and much of it

is just breaking through the ground in these communities. A long, wet, unfavorable planting season has caused the long delay in getting the crop in. I have no doubt that late blight will break out in Michigan before the season is over. However, I do not expect it until later in July or possibly in August. In Emmett County, in particular, last year the blight was quite well scattered over the county on the fifth day of July. However, last year the crop was in the ground about 3 weeks earlier than during the present season. (J. H. Muncie, quoted by I. E. Melhus, July 19)

Late blight is reported as present in Michigan according to I. E. Melhus (July 27).

WISCONSIN: R. H. Larson reports no change in Wisconsin. Lesions are present on upper and lower stems, but there has been no spread. (I. E. Melhus, July 27)

MINNESOTA: C. J. Eide reports that Professor R. H. Rose found late blight in a field in western Minnesota, east of the Red River Valley. The field infection reported last time 50 miles north of Minneapolis has virtually disappeared. The temperature in Minnesota has risen sharply during the last 2 weeks, going well above normal and the 1942 average. (I. E. Melhus, July 29)

IOWA: On July 23 late blight was found in 2 fields in north central Iowa, 8 miles from Forrest City on potatoes growing in peat soils. In one of the fields, consisting of 14 acres, a focus of infection was located that had a diameter of about 300 feet. The amount of disease in the center of the area comprised about 25% of the leaves. At the periphery of the circle it was only now and then that an infected leaf could be found. It was clear that the disease started from an infected shoot although it was not possible to establish the particular hill from which the infection spread. In the other field, which was about 30 rods away, only isolated infections were found. These were scattered rather promiscuously over 5 acres, at one end of the field near the road. If the weather remains favorable the crop will be reduced, in spite of our best spraying efforts. (I. E. Melhus, from mimeographed letter to Upper Mississippi Valley Plant Pathologists War Service Committee, July 27.)

NEBRASKA: An examination of 34 fields in central Nebraska, in areas near Kearney, Gibbon, Arcadia, and Burwell, on July 12-14, showed late blight present in varying amounts. In several fields infection was present on all leaves and complete defoliation seemed a matter of only several days. In about 10 fields some leaf lesions could be found on the lower leaves. In about half of the fields, all located in the northern portion of the district, no late blight was found. Most fields have been sprayed with copper once, some 3 times. No tuber rot was noted. Potato harvest is just beginning and will continue for about 3 to 4 weeks. Since most late blight was found on fields about to be

dug and no tuber rot was noted, any estimate of damage to occur is mere guessing. The disease was present and its development will depend upon the weather among other factors. As far as yields are concerned, several harvested fields produced up to 400 bushels per acre. No late blight has been found in the late potato areas of western Nebraska. (J. H. Jensen, quoted by I. E. Melhus, July 19. Dr. Melhus remarks "It is significant that late blight is developing in fields in Nebraska in a section that is in the short-grass country.")

COLORADO: On July 8, we examined numerous unsprouted seed pieces in a field in Weld County in which there was a very poor stand. The majority of these seed pieces revealed characteristic late-blight rot. Random seed-piece samples showing symptoms were taken to the laboratory and incubated. In an examination of this material several days later, fruiting bodies of Phytophthora infestans were found. It is believed that some of the poor stand following the planting of uncertified seed in the late potato area of Weld County is due to infection by Phytophthora infestans. (W. A. Kreutzer, J. G. McLean, and W. H. Henderson, quoted by I. E. Melhus, July 27)

OTHER REPORTS ON DISEASES OF VEGETABLE CROPS

BACTERIAL CANKER AND EARLY BLIGHT OF TOMATO IN OHIO: In a recent survey in the tomato canning area of Ohio it was found that bacterial canker [Corynebacterium michiganense] was present in several tomato fields. Several factors have contributed to the increased prevalence of this disease in Ohio this year. In the first place, canners were willing to buy southern-grown tomato plants wherever they were available and then found it necessary to hold these plants for some time. Following transplanting heavy rains occurred with much surface water spreading the bacteria within the individual fields. The disease was not found in fields using home-grown plants. A trace to 20% was observed in the fields examined.

Apparently the disease is continuing to develop and spread and may cause a total loss in a few individual fields. This plus poor stands, due partly to Alternaria [A. solani] canker will seriously reduce the yield in Ohio. The Alternaria canker was found on both southern-grown and northern-grown plants, and apparently spread in transit and while plants were heeled-in, or held for transplanting. Cankers were observed at the base and in some fields quite prevalent on the upper portions of the stems. The fungus also had caused a die-back of some plants. Most plants were naturally weak and the attack of Alternaria seriously affected stands. (C. C. Allison, Extension Plant Pathologist. July 20)

COMBINED NEMATODE-WILT ATTACK ON MUSKMELONS IN INDIANA: Muskmelons in Knox County, Indiana, are dying from a wilt disease that kills the plants in large and rather definite areas in the infested fields. Many of the plants are well developed and have developed mature melons before being killed. The roots of every plant examined were infested

with nematodes and in every plant the xylem was brown in the stem and in the roots. A microscopical examination of the tissues revealed an abundant development of mycelium in the tracheae.

Most of this sandy soil is known to be so badly infested with watermelon wilt [Fusarium bulbigenum var. niveum] that nothing but the resistant varieties can be grown. It would appear that this wilt of the muskmelons is the result of the combined attacks of nematodes and the Fusarium causing watermelon wilt, similar to the nematode-cotton wilt relation described by several investigators in the South. (Charles T. Gregory, Extension Pathologist. July 29)

VEGETABLE DISEASES REPORTED FROM PENNSYLVANIA: Early blight (Alternaria solani) is common in many tomato fields and will cause severe damage if wet weather occurs. (June 29)

Bacterial blight (Pseudomonas pisi) of peas was unusually widespread and destructive. It was first observed May 5 at Lancaster. Ascochyta blight (A. pisi) was rather more widespread and destructive than usual. The first observation was on June 2 at Lancaster. (June 29)

Angular leaf spot (Pseudomonas lachrymans) is starting to appear in the cucumber fields in southeastern Pennsylvania, where it was first observed on July 1. (July 5)

Drop (Sclerotinia sclerotiorum) was more destructive and widespread on lettuce than usual. (June 29) (R. S. Kirby, Pennsylvania State College)

REPORTS ON SCAB OF SMALL GRAINS

WEST VIRGINIA: The few fields that I observed had less scab than most fields had last year, but the disease was generally present. A few reports have come to me of severe injury. In most years scab is the most destructive disease of wheat and barley in West Virginia, and in regions where rainfall was normal or above normal I feel confident that scab was no less destructive than usual. Scab is notoriously more destructive when wheat or barley follows corn, and this rotation is very generally practiced in West Virginia. (J. G. Leach, West Virginia University. July 28)

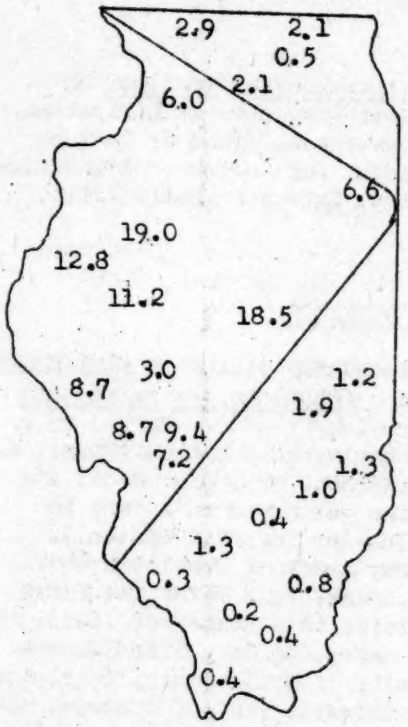
IOWA: Our best estimate of scab losses in Iowa is 10%. (I. E. Melhus, Iowa State College, July 31)

SCAB OF SMALL GRAINS IN INDIANA: Yields of winter wheat in the southern two-thirds of Indiana have been greatly reduced by scab. Early fields appear to have been more severely damaged than later fields, which is a reversal of the usual relationship to earliness. Spring wheat suffered little damage at Lafayette. The average loss for the State is placed at 15%. Losses in the southern two-thirds of the State are estimated to range from 5 to 50%. In the northern third losses are estimated at 5%.

Winter barley losses from scab are believed to parallel those of wheat and are estimated at 15%.

Losses on spring oats were negligible although occasional scabbed spikelets were readily found. (Ralph M. Caldwell, Purdue University Agricultural Experiment Station. July 28)

ILLINOIS: With temperatures warmer than usual and rainfall above normal through much of the State during the heading period for wheat, conditions were unusually favorable for scab infection. Consequently an exceptionally large amount of scab appeared in most wheat fields in the northern two-thirds of the State. Field counts made by G. H. Boewe, Illinois Natural History Survey field botanist, showed infections ranging as high as 19% of all spikelets in the central part of the State (Fulton County) and as low as 0.2% in the extreme southern part (Franklin County).



Scab infection was present this year in every wheat field examined. However, amounts of infection varied greatly in different parts of the State. In the south and east, infection was relatively light, resulting in actual field losses (see map) of 0.2 to 1.9%. In a small northern section approximately the size of Sicily, infection was somewhat heavier, resulting in field losses of 0.5 to 2.9%. In the remaining large central and western section of the State, infection was generally quite heavy, resulting in direct losses of 3 to 19%.

During the year following a heavy scab infection of wheat heads additional serious losses are apt to occur, since the scab fungus also causes a destructive seedling blight of wheat. The sowing of scab-infested wheat is certain to result in large amounts of this blight which, in turn, reduces both stand and yield in the second year. (L. R. Tehon, Illinois Natural History Survey. July 22)

OTHER DISEASES OF CEREALS AND GRASSES

DOLLAR SPOT ON BENT GRASS IN MINNESOTA: Dollar spot (Sclerotinia homeocarpa) on bent grass appeared at the beginning of June and has been very common in most of Southern and Western Minnesota during July.

In most cases the disease is being readily controlled by Thiosan, but in one case in the Twin Cities this chemical was completely ineffective. Despite repeated applications, further attacks of the disease developed and when the writer saw the grass, 13 greens out of 18 were very severely injured, not only the leaves being destroyed but the whole plant.

The affected greens were all located on the higher parts of the course; the lower lying greens being relatively free from the disease although suffering from occasional attacks of brown patch. Examination of plugs from the greens indicated that a dense mat of undecayed stems and leaves existed uniformly 1 to 2 inches below the surface of the turf, and it is considered very possible that this sub-surface layer, rather impervious to root penetration, weakened the grass sufficiently so that the disease was much more severe on these greens than elsewhere. (Ian W. Tervet, University of Minnesota)

SWEET CORN LEAF BLIGHT IN INDIANA: Helminthosporium turcicum on Golden Cross Bantam sweet corn was found yesterday here at Lafayette. This is the earliest that the disease has ever been found in Indiana so far as we know. Conditions have been ideal for increase of inoculum this spring and summer.... (Charles T. Gregory, Extension Pathologist, July 20)

REPORTS ON TOBACCO DISEASES

BLACK SHANK AND GRANVILLE WILT CAUSING INCREASED DAMAGE TO FLUE-CURED TOBACCO IN VIRGINIA: Black shank of tobacco (Phytophthora parasitica Br. de Haan.var. nicotianae Tucker) has previously been reported on a few farms in Halifax, Mecklenburg, and Pittsylvania Counties. (Fenne, S. B. Tobacco black shank is spreading in Virginia. Pl. Dis. Rept. 25: 534-535. 1941.) More recently its presence was noted on a farm in Franklin County. (Personal files of W. A. Jenkins for 1942 season.). During June, specimens sent in by the county agent of Charlotte County were diagnosed as being affected by black shank, this being the first record of its presence in this County. Visits to a number of fields by the author, R. G. Henderson, and W. A. Jenkins, on July 1 and 2, revealed that at least 2 fields in the vicinity of Wylliesburg, Charlotte County, were definitely infested by this disease. One, of 6 acres, already had suffered approximately 20% loss of plants, with others dying continually. The owner stated that the disease had been present in this field for 3 seasons, and that he believed the same disease was present in a field on an adjoining farm in 1939. The other field on which infected plants were found is being cultivated with the same implements as the first field and at the time of inspection showed only a few plants infected. This new area is approximately 20 miles from Buffalo Junction, Mecklenburg County, where black shank was first found in 1939, and only a few miles from a section of Mecklenburg County where infestation has been previously reported and where a number of new infestations were found on this same inspection trip.

Granville wilt (Bacterium solanacearum Erw. Sm.) is also spreading and

is causing increased damage in Pittsylvania, Halifax, and Mecklenburg Counties. In one of the best tobacco producing areas of eastern Mecklenburg County practically every field shows some damage due to this disease. Reports of Granville wilt damage have also been received from Patrick, Henry, Halifax, Dinwiddie, Charlotte, and Lunenburg Counties. (Edward K. Vaughan, Extension Plant Pathologist, Virginia Agricultural Extension Division)

SEEDLING BLIGHT ON TOBACCO IN NORTH CAROLINA: In connection with the breeding work on Granville wilt of tobacco, two resistant hybrids of 448A parentage were sown on a farmer's bed near Creedmoor, North Carolina. One strain sown on 20 square yards of bed grew slowly and when in the 4-to-6-leaf stage was almost completely destroyed by a blight, in which the plants turned yellow and finally withered. The roots were decayed and brownish in color. Resting bodies of Asterocystis radicis de Wild. were found in the cells of the root cortex. Fresh material was supplied Dr. J. N. Couch, University of North Carolina, Chapel Hill, North Carolina, who found mature sporangia, gametes and zygotes, in addition to the star shaped resting bodies. This fungus has been reported on tobacco from several countries in Europe and from eastern Russia. It is probable that Olpidium brassicae (Wor.) Dang. reported on tobacco in Wisconsin in 1923 (Bensaude, M. A. A species of Olpidium parasitic in the roots of tomato, tobacco, and cabbage. Pytopath. 13: 451-454. 1923.) is the same as Asterocystis radicis de Wild, but further data is needed to confirm this.

For the past several years T. I. 448A and some hybrids from it have been severely damaged by a root decay and it is possible that this decay was caused by A. radicis. At both Oxford and Creedmoor, standard flue-cured varieties were not affected. (T. E. Smith. Cooperative investigations of the Division of Tobacco Investigations, Bureau of Plant Industry, Soils, and Agricultural Engineering, Agricultural Research Administration, U.S. Department of Agriculture, the North Carolina Agricultural Experiment Station and the North Carolina Department of Agriculture.)

TOBACCO DISEASES IN MASSACHUSETTS: Tobacco beds were late this year along with other farm operations due to the cold, wet spring. Downy mildew [Peronospora tabacina] was correspondingly late in showing up. The first primary infections were observed May 24-28 when the oldest plants were about 1/4 to 1/3 grown. Planting got under way about June 5, but a majority of the beds will not be pulled until the week of June 7.

The unusually wet season, with tobacco bed soils remaining almost waterlogged, brought on the worst cases of damping-off in Hampshire and Franklin Counties that have ever been observed here. The disease was characterized by stoppage ingrowth in the 2 to 4 leaf stage, the plants turning yellowish with leaves curved downward. All such plants showed root decay caused in most instances by Rhizoctonia. Copper dust or Bordeaux spray (or sprinkle) applications followed by light applications

of nitrate aided materially in recovery of diseased beds. Fermate 2-100 applied as sprays about every 4 days appeared to be as effective as Bordeaux spray but not quite so effective as watering-can applications of Bordeaux mixture 4-4-50. (O. C. Boyd and Thomas Sproston, MASSACHUSETTS STATE COLLEGE. June 18.)

SOME NOTES ON NEWLY OBSERVED OR UNUSUAL DISEASES

TWO BACTERIAL DISEASES IN TEXAS: During the 1942 season, specimens of Chinese Red cowpeas were received from Kingsville that showed unusual symptoms in the form of swollen canker-like lesions on the stems. The cortex in the affected portions of the stems was cracked open and bacterial exudate appeared in the form of whitish cirrhus-like masses. Later, the same disease was found on several varieties of cowpeas at Substation No. 5, Temple. According to Dr. W. H. Burkholder, Department of Plant Pathology, Cornell University, the causal bacterium is a new pathogen for cowpeas.

Sesame, Sesamum indicum, planted at College Station this year was attacked in the seedling stage by a leaf-spot disease. In severe cases, complete defoliation resulted in death of the seedlings. The trouble was apparently identical with the disease caused by Bacterium sesamicola Takimoto as described in Elliot's "Manual of Bacterial Plant Pathogens." (A. A. Dunlap, Texas Agricultural Experiment Station)

NEW OR UNUSUAL HOSTS FOR SOME PLANT DISEASE ORGANISMS: Additional Hosts of Cephaleuros virescens Kunze -- I wish to report 2 hosts of Cephaleuros virescens Kunze which, as far as I have been able to determine, have not been reported before. (1) Illicium floridanum Ell. (anise-tree). Specimens were collected near Albany, Louisiana, April 23, 1943. (2) Engelhartia pterocarpa (Oerst.) Standl. collected by Jorge Leon at LaGloria, Cartago, Costa Rica, October 9, 1940. The specimen was sent to F. Carvajal, then a graduate student at Cornell University, and was determined by the writer.

Fabraea maculata (Lév.) Atk. on Pyracantha-- On August 4, 1942, a large firethorn bush (Pyracantha coccinea, var. formosana) on the Louisiana State University campus was noted with small, black, angular spots on its foliage. For the most part the margins of the lesions were sharply delimited from the green portion of the leaf, but some were surrounded by a pale-green halo. There was considerable shedding of the leaves. Entomosporium conidia were found on the lesions. The conidia were somewhat smaller than those on pear leaves, and it was thought that the fungus on pyracantha might be a distinct species from that occurring on pear. Attempts to isolate the fungus by planting pieces of diseased tissue on agar were unsuccessful.

In April, 1943, the disease was again found on the same bush, and this time the fungus was isolated with ease. The cultures have been compared

with cultures obtained from pear, and they appeared alike. Furthermore, inoculations on pear with the pyracantha isolates have produced infection.

As far as the writer knows, this is the first report of Fabraea maculata (Lév.) Atk. on pyracantha. (A. G. Plakidas, Plant Pathology Department, Louisiana State University.)

PLANT DISEASES IN MASSACHUSETTS DURING MAY

O. C. Boyd and Thomas Sproston

Diseases of many kinds of plants were highly favored by the rainy weather that characterized the month of May. From May 3 to May 27, there occurred 7 wetting periods of sufficient duration to favor infections. There were 6 such infection periods that favored scab [Venturia inaequalis] infections in apples between May 8 (early pre-pink bud stage) and May 27 (petalfall). The first apple scab infection appeared May 21, a light one resulting from the May 8 rain. A much heavier infection took place on unprotected trees during the wet period of May 10-12 when trees were in pre-pink to early pink fruit buds. Spots from that infection period appeared on May 22-25, mostly on the second to fourth fruit spur leaves. Mature scab spores were very numerous prior to that rain period. Other dates when scab infections occurred were May 18, late pink to early bloom; May 19-20, early bloom; May 21-22, full bloom, May 26-27, calyx or petalfall. Since then, a 28-hour wetting occurred on June 1-2, and a 20-hour wet period on June 7-8.

Apple scab infections vary greatly in different orchards, the amount depending on when sprays were applied mostly in relation to the wet periods of May 10-12, 18, 21-22, and 26-27, and on the amount of inoculum in the orchards concerned. They range from very light to very heavy, and some growers have already applied lime-sulfur to check the disease on the foliage. It has been several years since such pronounced infections have been observed not only on the fruit spur leaves, but also on the sepals, young apples, and pedicels of the fruits. Black rot (frog-eye) [Physalospora obtusa] leaf infections also are unusually conspicuous on Baldwin and Cortland in particular, and cedar rust [Gymnosporangium] is just now developing.

Quince fire blight [Erwinia amylovora] on young shoots was observed June 7, on specimens sent from eastern part of the State.

Strawberry Rhizoctonia fruit rot [R. solani] observed on ripening berries in Amherst on June 8.

Iris leaf spot [Heterosporium gracile] was first observed on May 17 on specimens mailed from Northampton.

Peony Botrytis blight [B. paeoniae] is uncommonly prevalent. It was first observed June 1 in Amherst.

Tulip fire (Botrytis blight) [B. tulipae] is not as conspicuous as was anticipated for such a wet season. It was first seen about May 25 in Amherst.

Lilac anthracnose (Gloeosporium sp.) was observed on a single plant in Amherst on June 8, causing spotting and blighting of leaves and dying back of tender shoots.

Damping-off, causing poor stands in vegetables, beets, spinach, carrots and cucumbers in particular, has been unusually prevalent where seed protectants were not applied, but good stands have resulted generally in gardens and fields where the seeds were treated according to recommendations.

Onion smut [Urocystis cepulae] is more serious than usual this spring, particularly where under-dosages of formaldehyde were applied during seeding, or where normal applications were followed by diluting rains. Results of seed-treatment demonstrations in Hampshire and Franklin County indicate good control with Fermate and Arasan, better than standard treatments with formaldehyde or with other liquid treatments.

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